Model 7100P Portable Trace Oxygen Analyzer

Lightweight, rugged, reliable, compact series / high purity

DESCRIPTION

The MSA Model 7100P, powered by Neutronics Technology, is a portable analyzer designed for trace oxygen gas measurement in pure gases such as nitrogen, argon, and helium. This analyzer features a rapid-response mini-zirconia sensor (ZR-400) with a measurement range of 0 to 1000 ppm oxygen. Extremely fast response, high accuracy, and simple calibration make this portable analyzer a low-maintenance solution that delivers reliable performance in a rugged light-weight steel enclosure.

Features

0 to 1000 ppm measurement range

Mini-zirconia oxide ZR-400 sensor

Pump drive for extractive or positive pressure sampling

Sample flowmeter for easy-to-read monitoring

Simple start-up

The ZR-400 sensor is a non-depleting solid state device based on a zirconia electrolyte cell. With an integral heater and two electrodes, it is mounted directly onto a printed circuit board that supplies bias and heater voltages to the sensor element. A small capillary on the sensor surface controls diffusion of oxygen into the sensor. At operating temperature, oxygen is electrochemically reduced, causing current flow through the solid electrolyte. Oxygen concentration in the sample gas is determined by measuring the current flowing through the electrodes.

The response time for the ZR-400 mini-zirconia oxygen sensor is 10 seconds. Accuracy is to within ±2.0% of the measurement range. Operating service life is 3 to 4 years, and it has an unlimited shelf life. It is not affected by position and can be exposed to high atmospheric pressures with no impact on performance. This robust sensor has low cross-sensitivity to other gases and is unaffected by dry atmospheres or extremely cold storage temperatures.

This lightweight analyzer requires connection to a power supply and includes Stainless Steel tubing with a 1⁄8" Swagelok fitting for quick connection to the process sample port. An internal pump is used to extract the gas sample and send a flow rate of approximately 1 slpm to the sensor. A bypass valve creates constant back pressure on the sensor to maintain a stable flow, ensuring a fast response time. The sample flowmeter on the front panel provides accurate and easy-to-read visual flow readings. The Model 7100P is shipped ready to use and operate with the complete configuration already programmed and tested by the factory. Setup parameters may be changed by the user by accessing the setup menu by pressing the buttons on the keypad. All parameters may be changed by using the RS-232 service port interface.

It takes approximately three minutes to warm up from a cold start. Some applications may require an additional external filter to remove excess particulates or prevent process vapors from clogging the orifice of the sensor. The analyzer is factory calibrated using two calibration gases with a background of nitrogen and verified at several other points within the range of the unit. Single or two point calibration is recommended at least once every six months. To attain the highest accuracy, the analyzer should be recalibrated for use in other background gases such as argon or helium. The easy to read 7-segment large alphanumeric display shows the oxygen concentration and guides the user through system setup, calibration, and maintenance procedures.

MORE INFORMATION:
Scan the QR code to learn more about the Model 7100P Portable Trace Oxygen Analyzer and other MSA products.

SAFEGUARDING
PEOPLE, PLACES, & THE PLANET

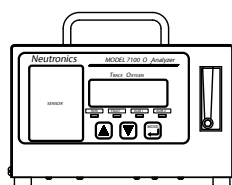# Model 7100P Portable Trace Oxygen Analyzer

Alarms with configurable relay outputs initiate active modes and light indicator LEDs based on user defined settings. The alarm status clears automatically when the measured oxygen concentration is within the set threshold value. The Model 7100P can be configured to automatically change the measurement range based on the concentration of oxygen in the process. When auto-ranging is used, the 0-10 VDC Auto-range Identification output provides an indication of the selected full-scale of the analog output. The range ID output is used in conjunction with the analog voltage and analog current outputs.

Description	Part Number
7100P-CE, 90-264 VAC	C7-01-7100-01-0
7100P, 24 VDC	C7-01-7100-01-2

Specifications	Description
Type	Portable trace oxygen analyzer
Operating range	0-100 ppm, 0-1000 ppm, auto
Sensor	Mini-zirconia, ZR-400
Accuracy	± 2% of range @ calibrated temperature and pressure or ±3 ppm
Response time	T90 < 10 seconds
Warm up time	Approximately 5 minutes to reach thermal equilibrium
Sensor expected service life	3 - 4 years
Relative humidity (analyzer)	0 - 95% non-condensing
Operating temperature	5° - 40° C (41° - 104° F)
Sample pressure	LEDs for system status: run, fault, alarm-1, alarm-2

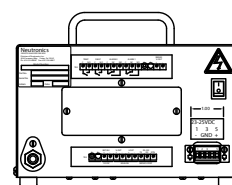| Specifications	Description
Display	7-segment, 0.75" alphanumeric LED, 4 characters LEDs for system status: run, fault, alarm-1, alarm-2
Power	90 to 264 VAC, 50/60 Hz or 24 VDC
Analog current output	4 - 20 mA, 12 VDC, powered by the analyzer
Analog voltage output	0-1, 0-5, 0-10 VDC
Relay outputs	Two alarm relays, field adjustable Form C (SPDT), One system fault relay, non-adjustable Form B (SPST)
Serial service port	RS-232
Control panel rating	Weatherproof NEMA 4, IP66
Rear electronics chassis rating	NEMA1, IP20
Warranty	Analyzer: 12 months, sensor: 6 months

Specifications are subject to change without notice.

Oxygen analyzer
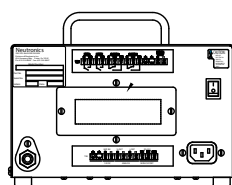
Back view - 90 to 264 VAC

Back view - 24 VDC

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